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4 March 2019

Original: English

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**United Nations Group of Experts on  
Geographical Names**

**2019 session**

New York, 29 April–3 May 2019

Item 15 of the provisional agenda\*

**Toponymic data files and gazetteers (data processing and  
tools, database management, data dissemination: products  
and services) (Working Group on Toponymic Data Files  
and Gazetteers)**

**Experiment in romanization of the web map using geographical  
names information in vector tile data**

Submitted by Japan \*\*

Summary

The Geospatial Information Authority of Japan has developed, on an experimental basis, a romanized web map using geographical names information in vector tile data. Through a web browser voice-reading function, the web map allows users to hear the correct Japanese pronunciation of geographical names. The romanized web map with the voice-reading function will be an effective tool to support smoother communication for those who are unfamiliar with the Japanese language. It will provide the correct pronunciation of geographical names shown in Japanese kanji characters and is expected to contribute to promoting awareness of such pronunciation

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\* GEGN2/2019/1

\*\* Prepared by Geospatial Information Authority of Japan (GSI).

## **Experiment in the Romanization of the Web Map Using Geographical Name Information in Vector Tile Data**

### 1. Introduction

As the national geospatial information authority of Japan, GSI has been providing data on national land of Japan in easy-to-use manner. As for geographical name information, GSI has developed a geographical name database consisting of geographical names listed in topographic maps of the scale of 1:25,000. This database allows users to see geographical name information through the GSI's web map ("GSI Maps") and to find locations with its location search function.

Moreover, GSI has been experimentally providing geographical name information using machine-readable vector tile data on GSI Maps since August 2017. Additionally, GSI experimentally began providing translated English geographical name information in vector tile data in February 2019.

### 2. Provision of geographical name information using vector tile data and voice-reading map

A Japanese kanji character, which mostly adopted Chinese character, usually has multiple readings. Geographical name information composed of such Japanese kanji characters can have various reading patterns. For example, there are place names that read "Shinjuku" and "Nijuku" for the same Japanese kanji "新宿". There are also place names that read "Oyama" and "Daisen" for the same kanji "大山". Therefore, it is difficult to recognize geographical name readings only from Japanese kanji expressions. Notations in hiragana, which express the Japanese syllabary, may help most Japanese people recognize the pronunciations. However, most foreigners are not familiar with the Japanese syllabary and cannot read hiragana notations. Furthermore, Romanization notations might not help foreigners know the accurate pronunciations in some cases. For example, "東京" is transcribed into "Tokyo," but the "close-to-actual" pronunciation may be represented by the phonetic symbol "**to:kyo:**".

Thus, GSI developed an experimental voice-reading system for geographical name information indicated on the web map, using the geographical name information in vector tile data that has been available since 2017. This experimental system was introduced at the 11th meeting of the United Nations Conference on the Standardization of Geographical Names

(UNCSGN). This system can help users to recognize the readings and pronunciations of geographical names information of Japan.

### 3. Production and publication of Romanization notation maps

The system introduced in the previous UNCSGN allows users to know the readings of the geographical names by displaying Romanized notations of geographical name information on the web map and to hear the voice reading, with the user's operation of clicking on appropriate geographical name information in Japanese. Since the user's operation is performed on the web map in Japanese, the system is not user-friendly. Thus, GSI developed Romanized notations of geographical name information using vector tile data and experimentally published as Romanized web map. These renewed web map system also has the previously introduced feature of a web browser's voice reading function. With the Romanized notations indicated on the web map, this system will help foreigners unfamiliar with the Japanese language to use the web maps easily and to know the correct pronunciations of geographical name information of Japan, and contribute to easier communication by geographical name information by knowing the user's present location and desired destination. This system will also help domestic users to have smoother communication concerning geographical name information in kanji notation that may read in multiple patterns. Thus, it is expected to contribute to disseminate correct pronunciations of geographical names.

### 4. Conclusion

The utilization of geographical name information using a vector tile data has resulted in the production of web map with Romanized notations that are capable of voice reading. The web map is very effective tool for supporting smoother communication for foreigners unfamiliar with the Japanese language by providing the correct pronunciations of geographical name information composed of Japanese kanji characters which do not have pronunciation information in themselves, and the utilization to geographical name information is expected to become wider. In parallel with these efforts, GSI is experimentally publishing geographical name information in multiple languages including some of the United Nations official languages toward the Olympic Games and the Paralympic Games to be held in Tokyo in 2020.

GSI will further make efforts to build a better environment for communications through geographical name information.